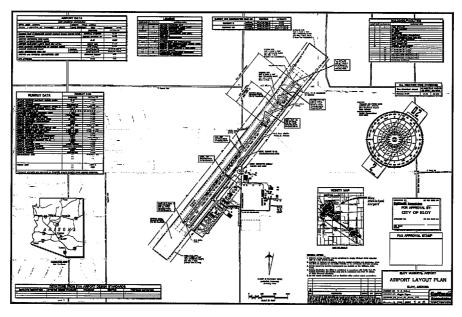


Chapter Five AIRPORT PLANS



# **AIRPORT PLANS**



The airport master planning process has evolved through several analytic efforts, as described in the previous chapters, which were intended to analyze future aviation demand, establish airside and landside facility needs, and evaluate options for the future development of the airside and landside facilities. The planning process, thus far, has included the presentation of the Phase I Report (representing the first four chapters of the master plan) to both the Planning Advisory Committee (PAC) and the City of Eloy staff. The recommended master plan concept has evolved, with the input of these individuals, into the following set of drawings. These drawings will be subsequently refined into the final layout drawings known as the Airport Layout Plans which will depict the extent of future improvements at the Airport for the short, intermediate, and long range planning period.

#### AIRPORT DESIGN STANDARDS

The design and safety standards pertaining to airport facilities are based primarily upon the characteristics of the critical design aircraft expected to use the airport. The critical design aircraft is the most demanding aircraft or "family" of aircraft which will conduct 500 or more operations (take-offs and landings) per year at the airport. FAA Advisory Circular 150/5300-13, Airport Design, is the primary reference for the design of airfield facilities. Within this advisory circular, a coding system has been established that identifies an airport's critical design aircraft. This design aircraft code, referred to as the Airport Reference Code (ARC), is a function of the critical design aircraft's approach speed and wingspan. The ARC was previously discussed in Chapter Three.

Presently, the ARC for Eloy Municipal Airport is B-II. Air traffic activity at the Airport consists mostly of local and itinerant general aviation operations. aerial agricultural-related spraying, and skydiving activities. The vast majority of aircraft at the Airport are of the single engine variety weighing less than 12,500 pounds. The planning forecasts analysis conducted in Chapter Two, however, suggest a potential for increased future multi-engine and turboprop activity at the Airfield. Turboprop and multi-engine aircraft weighing more than 12,500 pounds would then be the most demanding aircraft to operate at Eloy Municipal Airport. Most of the piston aircraft and some turboprop and business jet aircraft meet the B-I ARC standards (approach speed greater than 91 knots but less than 121 knots and wingspans up to but not including 49 feet), however, some turboprop and business jet aircraft (i.e., Cessna Citation II and Beechcraft Super King-Air) fall within the B-II ARC (approach speed greater than 91 knots but less than 121 knots and wingspans 49 feet up to but not including 79 feet). All future airfield facilities, therefore, should comply with B-II design and safety standards.

#### MASTER PLAN CONCEPT

The recommended master plan concept provides for anticipated aviation facility needs for the City of Eloy and surrounding area throughout the 20-year planning horizon. The following sections provide a brief discussion of the major improvements planned for Eloy Municipal Airport throughout the planning period.

#### AIRSIDE RECOMMENDATIONS

Airside recommendations include improvements to the runway, new taxiway construction, implementation of a GPS approach, and upgraded airfield lighting. These improvements are as follows:

Runway 2-20: Extend runway to an ultimate (long term planning horizon) length of 5,500 feet and widen to 75 feet. Increase the ultimate runway pavement strength rating from 12,000 pounds SWL to 30,000 pounds DWL to accommodate corporate aircraft forecast to use the Airport in the future. The proposed could runway extension accomplished in stages; however, the FAA minimum recommended runway length is 4,700 feet (800-foot initial runway extension). Please note: Based on the results of two separate Archaeological Resource Surveys, one conducted in 1990 and one in 1998, any runway extension to the north will require a formal Environmental Assessment before any construction See Chapter Seven, can proceed. **Environmental Evaluation for further** information. Finally, implement one mile visibility minimum GPS approaches to each end of Runway 2-20.

Taxiways: FAA design standards for ARC B-II call for a minimum runway-taxiway separation distance of 240 feet centerline-to-centerline. The existing parallel taxiway is located 200 feet from the runway centerline. Plans call for abandoning the current taxiway and constructing a new full length parallel taxiway, along with related exit stubs, at the recommended separation distance. Additionally, these taxiways will be

designed to ARC B-II standards with regard to width (35 feet), as well as match the previously discussed ultimate runway pavement strength rating of 30,000 pounds DWL.

Airfield Lighting: Recommended improvements to the airfield include the installation of runway end identification lights (REIL's) to each runway end; medium intensity taxiway edge lighting (MITL) on all taxiways, both proposed and existing; and aircraft parking apron area lighting to enhance both nighttime operations and airfield security.

**Visual Approach Aids:** Install PAPI-2s (precision path approach indicators) to each end of Runway 2-20.

**Airfield Pavement Markings:** Reapply visual (basic) centerline and numerical designations for the extended runway. Centerline and edge marking to be applied to all new taxiways.

#### LANDSIDE RECOMMENDATIONS

Landside recommendations include aircraft storage hangar facilities, general aviation terminal facilities development, improvements to airport access roads, and paved vehicle parking areas. Details of these improvements are as follows:

Aircraft Storage Hangar Facilities: The 20-year planning horizon calls for the construction of three (3), 6-position T-Hangar structures and three (3) conventional hangars (FBOs). The ultimate T-hangar facilities would be located east of Runway 2 on the proposed 4.1 acre property acquisition

site. A 10,000 square foot conventional hangar is also proposed for this site. Located between existing hangars #1 and #2 would be two (2) additional 3,600 square foot conventional hangars.

**General Aviation (GA) Terminal Facility Site:** Construction of a 2,100 square foot terminal building to be located southwest of existing Hangar 1.

Airport Access Roads and Vehicle Parking: The construction of a new entrance to the existing and proposed hangar facilities from the Lear Drive/Tweedy Road intersection. An area for non-aviation related development is provided on either side of this new entrance road. Designated paved auto parking areas are proposed for both the new T-hangar development area as well as the proposed GA terminal facility.

#### AIRPORT LAYOUT PLANS

The remainder of this chapter provides a brief description of the official layout drawings for the airport that will be submitted to the FAA and ADOT for review and approval. These plans, collectively referred to as the Airport Layout Plan Set, have been prepared to graphically depict the ultimate airfield layout, facility development, runway approach surfaces, runway protection zones, and the extent of the Airfield property. This set of plans include:

- Airport Layout Plan
- Terminal Area Plan
- Part 77 Airspace Plan
- Approach Profiles and Runway Protection Zone Plans

- Airport Property Map
- Public Airport Disclosure Map

The airport layout plan set has been prepared on a computer-aided drafting (CAD) system for future ease of use and revision. This computerized plan set provides detailed information of existing and future facility layout on multiple layers that permits the user to focus in on any section of the airport at a desirable scale. The plan can be used as base information for design, and can be easily updated in the future to reflect new development and more detail concerning existing conditions (as made available through design surveys). The airport layout plan set is submitted to the FAA for approval and must reflect all future development for which federal funding is anticipated. Otherwise, the proposed development will not be eligible for federal funding. Therefore, updating these drawings to reflect changes in existing and ultimate facilities is essential.

#### AIRPORT LAYOUT PLAN

The Airport Layout Plan (ALP) graphically presents the existing and ultimate airport layout. Detailed airport and runway data are provided to facilitate the interpretation of the Master Plan recommendations. Both airfield and landside improvements are depicted.

#### TERMINAL AREA PLAN

The Terminal Area Plan provides greater detail concerning landside improvements and at a larger scale than the ALP. The Terminal Area Plan

includes details concerning all landside development southeast of Runway 2-20.

#### F.A.R. PART 77 AIRSPACE PLAN

To protect the airspace around the Airfield and approaches to each runway end from hazards that could affect the safe and efficient operation of aircraft arriving and departing the airport, Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, have been established for use by local authorities to control the height of objects near the airport. The Part 77 Airspace Plan included in this master plan is a graphic depiction of this regulatory criterion. The Part 77 Airspace Plan is a tool to aid local authorities in determining if proposed development could present a hazard to the airport and obstruct the approach path to a runway end. The following provides a discussion of the recommended FAR Part 77 airspace surfaces.

#### F.A.R. Part 77 Imaginary Surfaces

The Part 77 Airspace Plan assigns three-dimensional imaginary areas to each runway. These imaginary surfaces emanate from the runway centerline and are dimensioned according to the visibility minimums associated with the approach to the runway end and size of aircraft to operate on the runway. The Part 77 imaginary surfaces include the primary surface, approach surface, transitional surface, horizontal surface, and conical surface. Part 77 imaginary surfaces are described in the following paragraphs.

Primary Surface. The primary surface is an imaginary surface longitudinally centered on the runway. The primary surface extends 200 feet beyond each runway end. The elevation of any point on the primary surface is the same as the elevation along the nearest associated point on the runway centerline. Under Part 77 regulations, the future primary surface width for Runway 2-20 is 500 feet wide (ARC B-II).

Approach Surface. An approach surface is also established for each runway end. The approach surface begins at the same width as the primary surface and extends upward and outward from the primary surface end centered along an extended runway centerline. Both the existing and ultimate approach surfaces for each end of Runway 2-20 extend 5,000 feet from the end of the primary surface at an upward slope of 20 to 1 to an outer width of 1,500 feet.

Transitional Surface. Each runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface also connects with the approach surfaces of each runway. The surface rises at a slope of seven to one up to a height which is 150 feet above the highest runway elevation. At that point, the transitional surface is replaced by the horizontal surface.

Horizontal Surface. The horizontal surface is established at 150 feet above the highest elevation of the runway surface. Having no slope, the horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 5,000 feet from the end of

the primary surfaces of each runway.

Conical Surface. The conical surface begins at the outer edge of the horizontal surface. The conical surface then continues for an additional 4,000 feet horizontally at a slope of 20 to 1. At 4,000 feet from the horizontal surface, therefore, the elevation of the conical surface is 350 feet above the highest airport elevation.

## APPROACH PROFILES AND RUNWAY PROTECTION ZONES

The Approach Profiles and Runway Protection Zones depict that portion of the airspace surrounding Eloy Municipal Airport which directly relates to each runway end's respective approach surface. Though not as comprehensive as an F.A.R. Part 77 Airspace Plan drawing, these drawings do provide an accurate profile representation of the approach surfaces of each runway end as well as a definitive plan and profile illustration of the respective runway protection zone (RPZ) for each runway end.

The Approach Profiles depict physical features such as topography, roadways, railroads, trees, etc. that are within the vicinity of each runway end and which may affect the approach surface. The dimensions and angle (approach slope) of these approach surfaces are a function of the runway service category and approach classification. Runway Protection Zones, which are shown in both plan and profile on these drawings, are defined as "An area off the runway end to enhance the protection of people

and property on the ground" (FAA Advisory Circular 150/5300-13 Chg. 5). Like the Approach Profiles, the Runway Protection Zones Plans and Profiles are used to identify physical features which may affect the approach surface of each particular runway end. The dimensions and extents of each runway's approach surface were previously described under the section detailing the Part 77 Airspace Plan drawing.

As with the approach surfaces, the runway protection zones are based on approach visibility minimums (i.e., onemile, less than 3/4-mile, etc.), and the aircraft approach category (A, B, C, D, etc.). Again, similar to the approach surfaces, the RPZs are trapezoidal in shape and begin 200 feet off each runway end. The RPZ dimensions for Runway 2-20 are 500 feet (inner width) by 1,000 feet (length) by 700 feet (outer width). A portion of each of the future RPZs for Eloy Municipal Airport, as illustrated on the ALP Plan Set, extend off of existing Airfield property. The FAA recommends that positive control of these areas be obtained by the Airport, either by avigation easement or property acquisition.

#### AIRPORT PROPERTY MAP

The Property Map provides historical information on the acquisition and identification of all land tracts that constitute current Airport property. The property map for Eloy Municipal Airport reflects the Airport both graphically and in legal terms as to its present condition.

#### PUBLIC AIRPORT DISCLOSURE MAP

In 1998, the Arizona State Legislature enacted Arizona Revised Statute (A.R.S.) §28-8485 which allows the owners of public airports to define an Airport Influence Area (AIA). Prior to recording to map with the County Recorder, a public hearing was required. The boundaries of the AIA are left to the discretion of the airport owner.

In 1999, the Arizona State Legislature enacted A.R.S. §28-8486, the purpose of which was to ensure public disclosure of an airport's presence within the official Public Reports of new subdivisions and developments. This statute defines the "territory in the vicinity of a public airport" as "property within the traffic pattern airspace as defined by the Federal Aviation Administration (FAA) and includes property that experiences a day-night average sound level (DNL) of 60 decibels or higher at airports where such an average sound level has been identified."

A public airport is defined as "an airport owned by a political subdivision of this state or that is otherwise open to the public."

Every public use airport in the State of Arizona was contacted and required to file with the Arizona Department of Real Estate a map illustrating exterior boundaries of the defined territory in the vicinity of the airport.

Because it was limited only to new development and did not provide fair disclosure during the resale of existing development, in 2000, the Arizona State Legislature revised A.R.S. §28-8486. The revised statute, which became law on July 18, 2000, requires that the map illustrating the territory in the vicinity of the public airport be recorded with the County Recorder in each county that contains property within the defined airport's territory. Compliance with the mandatory statute is and discretionary.

In addition, the revised statute identified the information to be used in defining the airport's territory. In all cases, the traffic pattern airspace, as defined by the FAA is to be illustrated. In addition, in counties with a population of 500,000 persons or less, the 65 DNL noise contour is to be illustrated. The source for this contour is identified as the Airport Master Plan for the 20-year planning period (long-term). In counties with a population of greater than 500,000 persons, the 60 DNL noise contour is to be illustrated. The source for this contour is identified as either the Airport Master Plan or a noise study prepared in accordance with F.A.R. Part 150. Again, this is to illustrate the longterm (20-year) planning contour.

The recorded map must be sufficient to notify owners and potential purchasers of property that the property is located in or outside of a territory in the vicinity of a public airport.

So as to reduce its confusion with the AIA statute, the map illustrating the territory in the vicinity of Eloy Municipal Airport is called the Public Airport Disclosure Map,

Sheet 6 of 6 of the Airport Layout Plan Set. The map illustrates the traffic pattern airspace as defined in FAA Order 7400.2D, Procedures for Handling Airspace Matters. As Pinal County has fewer than 500,000 residents, the map also illustrates the 65 DNL noise contour. This contour was prepared as part of this Airport Master Plan and reflects the long-term forecasts, consistent with the state statutes. (For more information on the noise contour, see **Chapter Seven**, **Environmental Evaluation**.)

The City of Eloy, as the airport sponsor, is required to record this map with the Pinal County Recorder and provide it to the Arizona Department of Real Estate.

#### **SUMMARY**

The Airport Layout Plan Set is designed to assist the City of Eloy in making decisions relative to future development and growth at Eloy Municipal Airport. The plan provides for development to satisfy expected airport needs over the next twenty years and beyond. Flexibility will be a key to future development since activity may not occur exactly as forecast. The plan has considered demands that could be placed upon the Airport even beyond the twenty-year planning period to ensure that the facility is capable of accommodating a variety circumstances. The F.A.R. Part 77 Airspace Plan and the Public Airport Disclosure Map should be used as tools to ensure land use compatibility and restriction of the heights of future structures or antennae which could pose a potential hazard to air navigation.

The Airport Layout Plan Set also provides the City with options in marketing the assets of the Airport for community development. Following the general recommendations of the plan, the Airport can maintain it's long term viability and continue to provide aviation services to the region.

AIRPORT MASTER PLAN



ELOY, ARIZ**ona** 

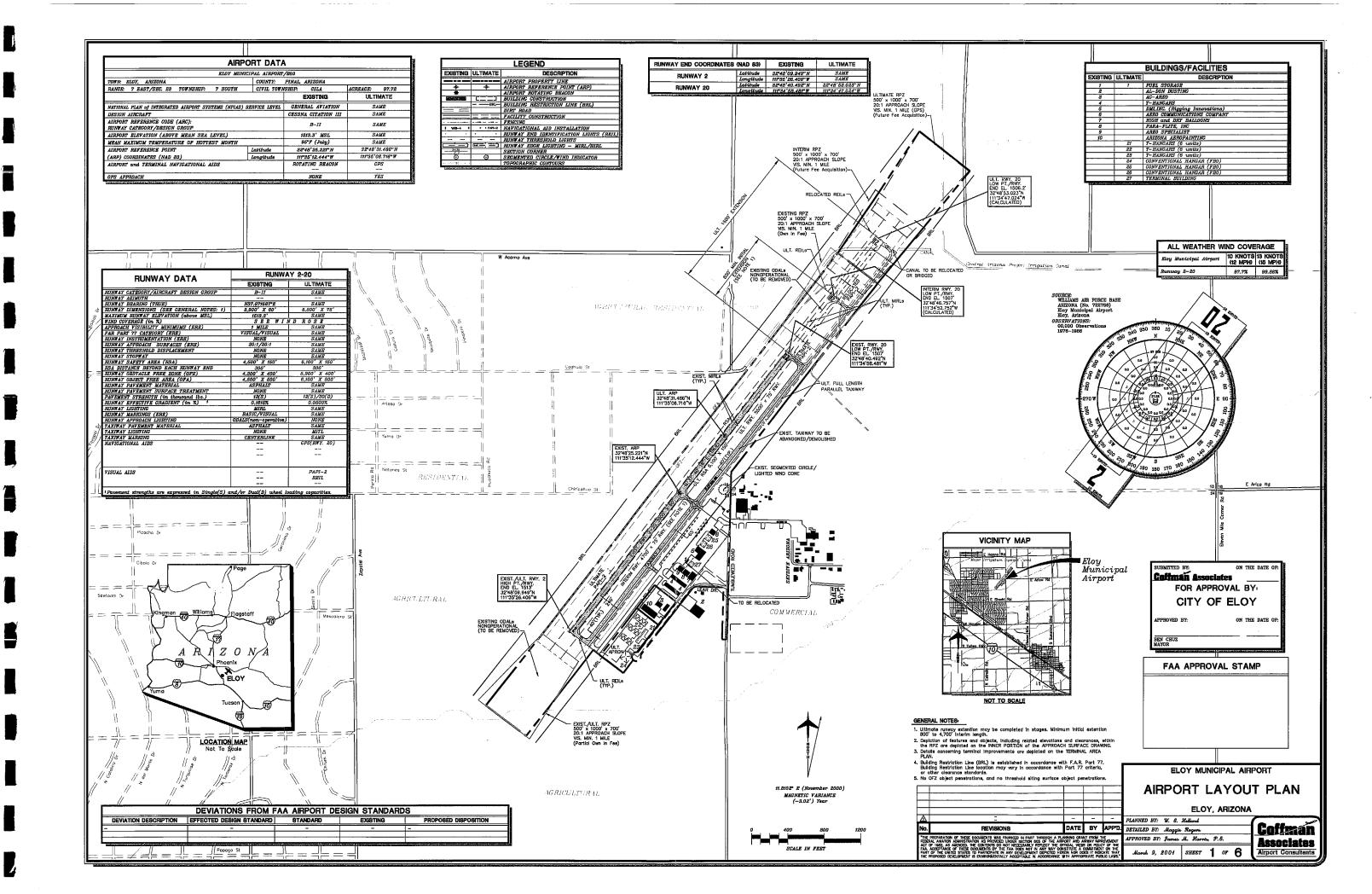
## AIRPORT LAYOUT PLAN SET

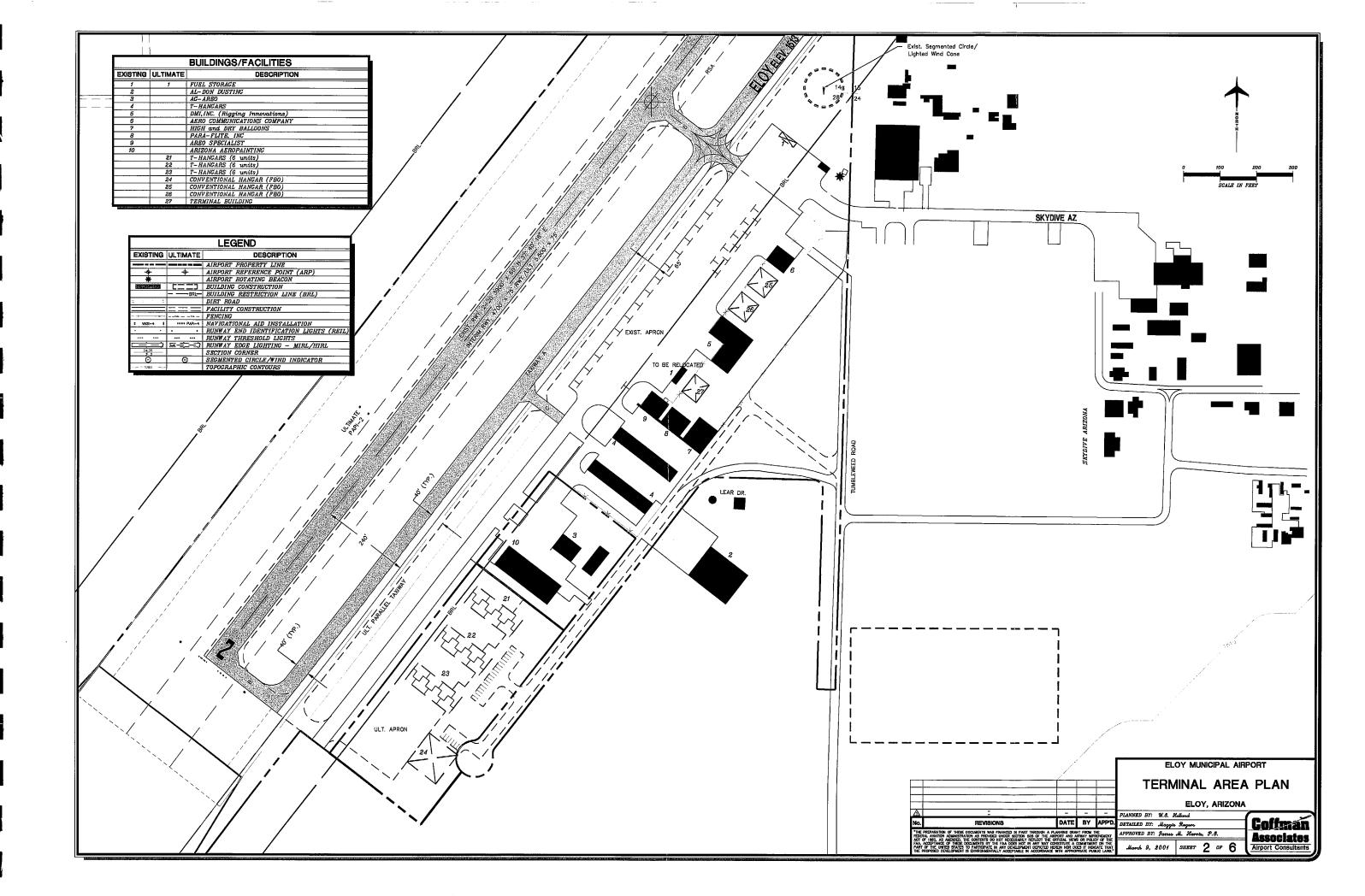
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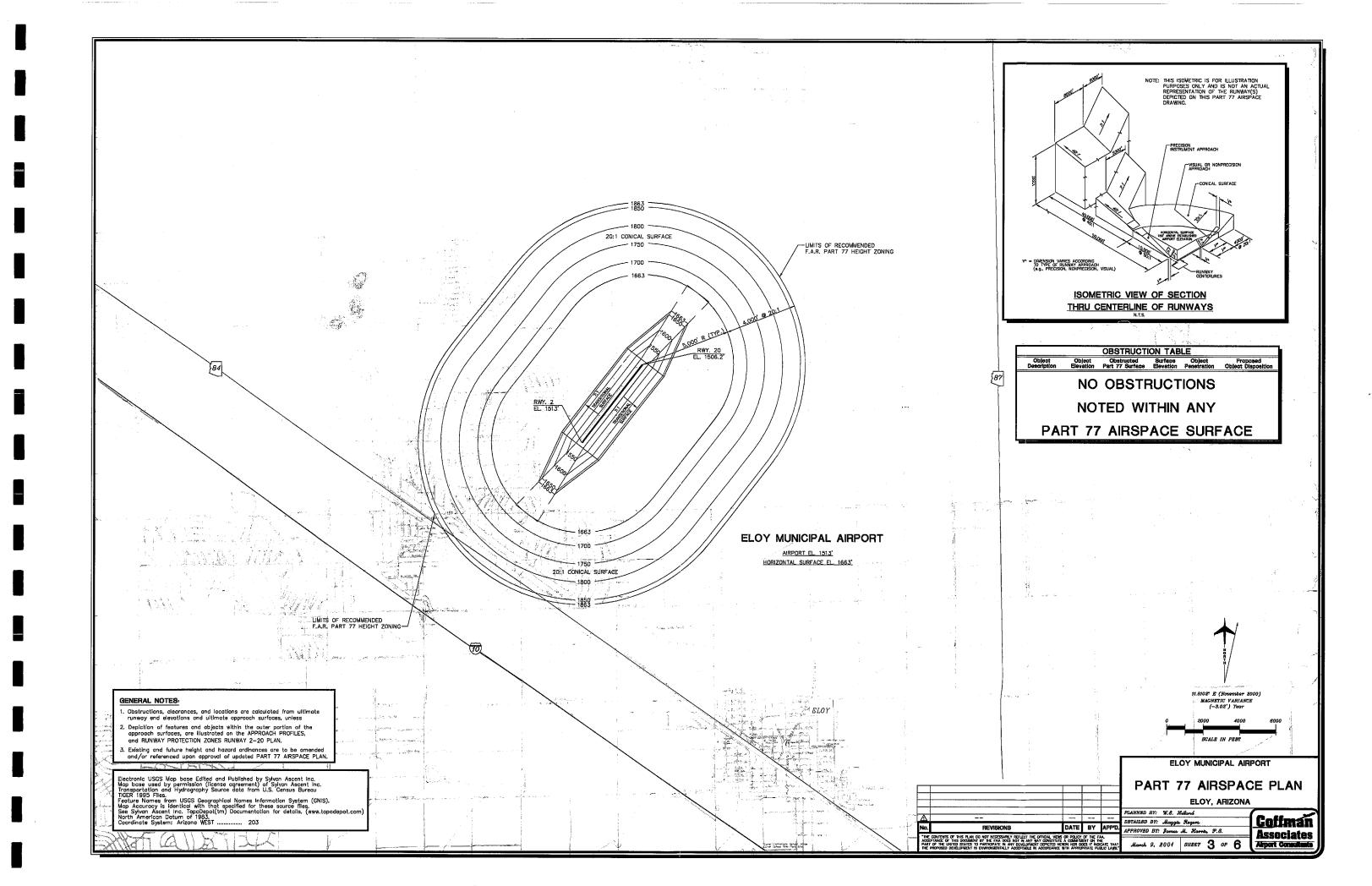
- 1. AIRPORT LAYOUT PLAN
- 2. TERMINAL AREA PLAN
- 3. PART 77 AIRSPACE PLAN
- 4. APPROACH PROFILES AND RUNWAY PROTECTION ZONES RUNWAY 2-20
- 5. AIRPORT PROPERTY MAP
- 6. PUBLIC AIRPORT DISCLOSURE MAP

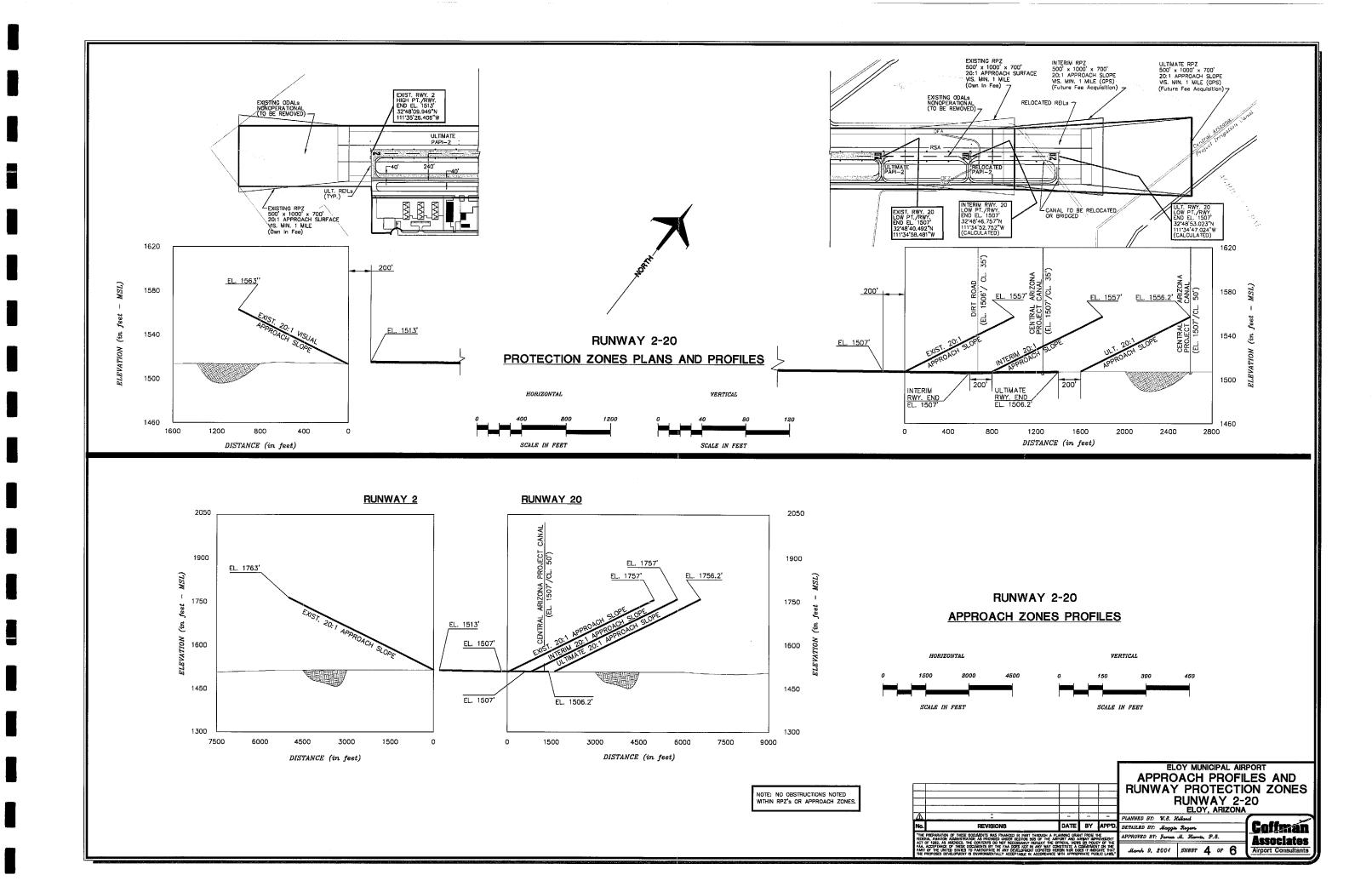


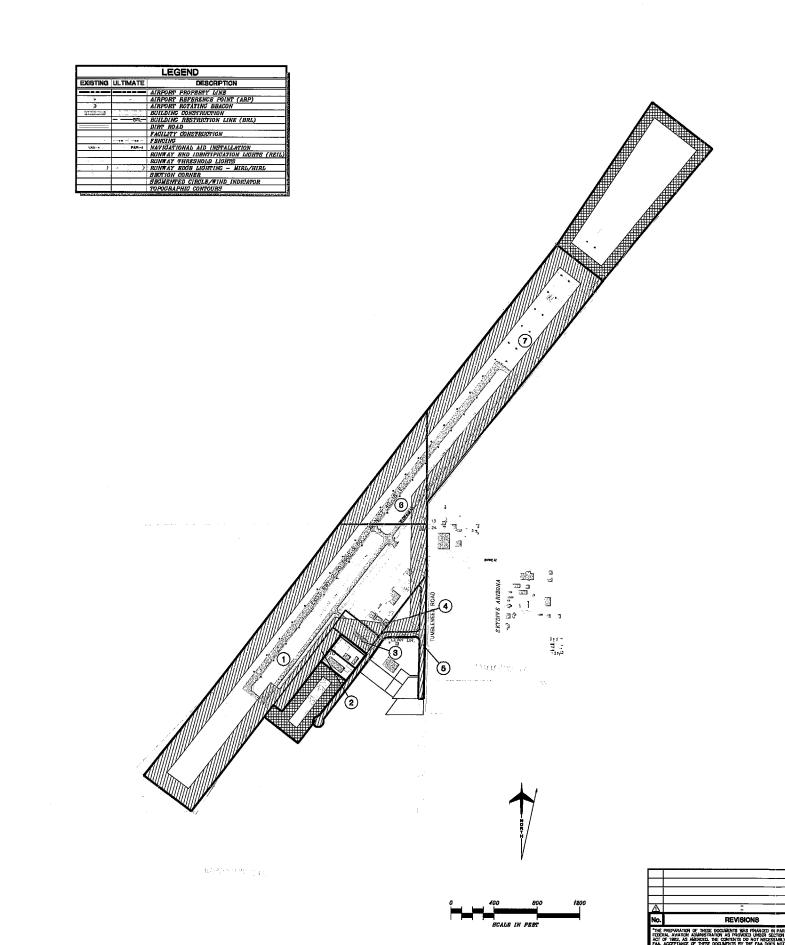
PREPARED FOR THE CITY OF ELOY











RECORDING INFORMATION (Couny Assessor - Pinal County, Arizona.)					
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0	City of Eloy, AZ	±49.00	N/A	Pinal County Document # 533-740	County of Pinal Other Documents
2	City of ⊡oy, AZ	±2.12	03/23/1995	Pinal County Document #	County of Pinol Other Documents
3	City of Eloy, AZ	±1.84	1969	Pinal County Document # 569-866	County of Pinal Other Documents
4	City of Eloy, AZ	±3,17	12/29/1995	Pinol County Document #	County of Pinal Warrenty Deed
(5)	City of Eloy, AZ	±1.58	01/17/1985	Pinal County Document # 1264–687	County of Pinal Warrenty Deed
6	City of Eloy, AZ	±10.60	N/A	Pinal County Dacument # 533-740	County of Pinal Other Documents
7	City of Eloy, AZ	±28.93	N/A	Pinal County Document # 534-58	County of Pinal Other Documents

KEY



Property To Be Acquired ( 38.7 ac)

ELOY MUNICIPAL AIRPORT

AIRPORT PROPERTY MAP

PLANNED BY: W. S. Helland DATE BY APP'D. DETAILED BY: Maggie Regime

DETAILED BY: W. B. Milland
DETAILED BY: Anagus Regen
APPROVED BY: James M. Mores, P.B.

Morel, 9, 2001 SHEET 5 OF 6

Goffman
Associates
Airport Consultants

